What is claimed is:

1. A method of modulating an input signal to obtain a desired intermediate signal that is to be subject to processing for transmission over a wireless link at a carrier frequency within a desired frequency band, the processing including subjecting the desired intermediate signal to a frequency multiplier operation that exhibits an ambiguous transfer function, the method comprising:

providing an input signal for modulation;

generating a set of signal states applicable to the desired intermediate signal so that a carrier signal resulting from the processing has a substantially non-ambiguous relation to the desired intermediate signal; and

modulating the input signal according to I and Q baseband signals to obtain the desired intermediate signal with the generated set of signal states.

2. The method of claim 1, wherein the desired frequency band encompasses a spectrum of frequencies in the 71-76 GHz, 81-86 GHz and 92-95 GHz bands.

3. The method of claim 1, wherein the step of generating includes mapping signal states of a first modulation scheme onto at least a portion of states of a plurality of available signal states for a second, higher-order modulation scheme to provide I and Q modulation signal inputs to the modulating step.

4. The method of claim 1, wherein modulating further includes modulating the input signal in quadrature.

5. The method of claim 1, wherein modulating includes modulating the input signal in phase and amplitude.

6. The method of claim 1, wherein the input signal is a sinusoidal signal.

7. The method of claim 1, wherein the signal to be transmitted has a substantially non-ambiguous relation to the desired intermediate signal as evident by signal states of the signal to be transmitted, which is output from the frequency multiplier, substantially corresponding to signal states of the desired intermediate signal, which is input to the frequency multiplier.

8. A method of transmitting data over a wireless link at a carrier frequency within a desired frequency band, comprising:

inputting a sinusoidal signal for modulation;

generating a set of signal states applicable to a desired modulated baseband signal;

modulating the sinusoidal signal according to I and Q baseband signals to obtain the desired modulated baseband signal with the generated set of signal states;

forming an input signal based on the desired modulated baseband signal;

subjecting the input signal to a frequency multiplier operation characterized by an ambiguous transfer function, so as to produce an output signal at the carrier frequency that has a substantially non-ambiguous relation to the input signal; and

transmitting the output signal at the carrier frequency within the desired frequency band over the wireless link.

9. The method of claim 8, wherein the step of forming includes:

upconverting the modulated baseband signal to an intermediate frequency (IF) signal;

filtering the IF signal to remove out-of-band components;

amplifying the filtered IF signal to a desired signal level to provide the input signal.

10. The method of claim 8, wherein the desired frequency band encompasses a spectrum of frequencies in the 71-76 GHz, 81-86 GHz and 92-95 GHz bands.

11. The method of claim 8, wherein the step of generating includes mapping signal states of a first modulation scheme onto at least a portion of a plurality of available signal states for a second, higher-order modulation scheme to provide I and Q modulation signal inputs to the modulating step.

12. The method of claim 8, wherein modulating further includes modulating the sinusoidal signal in quadrature.

13. The method of claim 8, wherein modulating includes modulating the sinusoidal signal in phase and amplitude.

14. The method of claim 8, wherein the output signal has a substantially non-ambiguous relation to the desired modulated baseband signal, as evident by signal states of the signal output from the frequency multiplier substantially corresponding to signal states of the input signal input to the frequency multiplier.

15. A transmitter circuit for transmitting data over a wireless link at a carrier frequency within a desired frequency band, comprising:

at least one frequency synthesizer for inputting a sinusoidal signal for modulation;

a digital processor for generating a set of signal states applicable to a desired modulated baseband signal;

at least one modulator for modulating the sinusoidal signal according to I and Q baseband signals to obtain the desired modulated baseband signal with the generated set of signal states;

a mixer for upconverting the modulated baseband signal to an intermediate frequency (IF) signal;

a filter for filtering the IF signal to remove out-of-band components;

an amplifier for amplifying the filtered IF signal to a desired signal level to provide an input signal,

a frequency multiplier for subjecting the input signal to a frequency multiplier operation characterized by an ambiguous transfer function, so as to produce an output signal at the carrier frequency that has a substantially non-ambiguous relation to the input signal; and

an antenna for transmitting the output signal at the carrier frequency within the desired frequency band over the wireless link.

16. A multifunctional transceiver comprising transmit circuitry adapted for modulating an input signal in accordance with the method of claim 1, so as to provide a wireless link in one or more of the 71-76 GHz, 81-86 GHz and 92-95 GHz bands.

17. A multifunctional transceiver comprising a transmitter circuit adapted for transmitting data in accordance with the method of claim 8, so as to provide a wireless link in one or more of the 71-76 GHz, 81-86 GHz and 92-95 GHz bands.

18. A multifunctional transceiver including the transmitter circuit of claim 14, the transceiver configured for providing a wireless link in one or more of the 71-76 GHz, 81-86 GHz and 92-95 GHz bands.